

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NM-279-AD; Amendment 39-13957; AD 2005-03-01]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all Boeing Model 747 series airplanes, that requires repetitive inspections of the nacelle strut-to-wing attachment structure, and repetitive overhaul of the diagonal brace and spring beam load paths, to maintain damage tolerance requirements and ensure long-term structural integrity; and follow-on and corrective actions if necessary. This action is necessary to ensure the structural integrity of the strut-to-wing load path and prevent separation of the strut and engine from the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective March 9, 2005.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 9, 2005.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to:

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

FOR FURTHER INFORMATION CONTACT: Tamara Anderson, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6421; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to all

Boeing Model 747 series airplanes was published in the Federal Register on September 18, 2003 (68 FR 54680). That action proposed to require repetitive inspections of the nacelle strut-to-wing attachment structure, and repetitive overhaul of the diagonal brace and spring beam load paths, to maintain damage tolerance requirements and ensure long-term structural integrity; and follow-on and corrective actions if necessary.

Actions Since Notice of Proposed Rulemaking (NPRM) Was Issued

Since the NPRM was issued, the FAA has reviewed Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004. Revision 1 of the service bulletin describes procedures that are essentially the same as the procedures described in the original issue of the service bulletin, which was referenced in the NPRM as the appropriate source of service information. For certain airplanes, Revision 1 extends repetitive intervals for the baseline inspections. For certain other airplanes, Revision 1 revises the inspection method for the supplemental inspection of a certain structure, and reduces threshold and/or repetitive intervals of the supplemental inspections. Revision 1 also adds repetitive torque checks of the fasteners of lower spar fitting for Groups 1 and 2 airplanes.

We find that the additional work in Revision 1 of the service bulletin is acceptable for compliance with the requirements of this AD. Therefore, we have added new paragraph (f) to this AD to specify that, as an option, the required actions in paragraphs (b) through (e) of this AD may be accomplished in accordance with Revision 1. However, operators should note that if any action specified in this AD is done in accordance with Revision 1, then all of the actions in this AD and the additional actions specified in paragraph (g) of this AD must also be done in accordance with Revision 1 at the applicable compliance times specified in that service bulletin.

Also since the NPRM was issued, Boeing has received a Delegation Option Authorization (DOA). We have revised this final rule to delegate the authority to approve an alternative method of compliance (AMOC) for any repair required by this AD to the Authorized Representative for the Boeing DOA Organization rather than the Designated Engineering Representative (DER).

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Request To Issue a Supplemental NPRM

One commenter requests that we issue a supplemental NPRM after Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004, is published. The commenter states that changes to the service bulletin will have a direct impact on the requirements of the proposed AD, and that "if this AD is deemed necessary, the AD should not be released until it incorporates that revision." The commenter also states that since Revision 1 has not yet been published, the commenter does not fully understand the changes made to the service bulletin.

We do not agree with the request to issue a supplemental NPRM. As discussed previously, we have reviewed Revision 1 of the service bulletin, which was published after issuance of the NPRM. We agree that Revision 1 of the service bulletin is acceptable for compliance with the requirements of this AD and have added Revision 1 to this final rule as an option for accomplishing the requirements of paragraphs (b) through (e) of this AD. Therefore, it is not necessary to reopen the comment period by issuing an supplemental NPRM. No other change to the final rule is necessary in this regard.

Request To Include Changes to Revision 1 in This Final Rule

Another commenter requests that we include all changes to Revision 1 of the service bulletin in this final rule, since the changes significantly affect fleet maintenance and operations. The commenter states that the changes in Revision 1 are based on comments received from operators through telex traffic and meetings, and that the Boeing Designated Engineer Representative (DER) has recommended that the FAA approve Revision 1.

We partially agree with the commenter. For the reasons discussed previously, we have added Revision 1 of the service bulletin to this final rule as an option for accomplishing the requirements of paragraphs (b) through (e) of this AD. No other change to the final rule is necessary in this regard.

Request To Remove Detailed Inspection

One commenter considers unwarranted the detailed inspection "to verify correct installation anytime a fuse pin or secondary pin joint is disassembled within 1,200 flight-cycles or 18 months, whichever is earlier." The commenter states that installation instructions "in the appropriate airplane maintenance manuals when followed and signed for by licensed maintenance personnel should not require a special subsequent inspection at future set time to verify correct installation." The commenter also asserts that a required inspection item at the time of installation may be more effective and appropriate. We infer that the commenter requests that we remove the above-stated detailed inspection from the proposed AD.

We partially agree with the inferred request to remove the above-stated detailed inspection from this final rule. Although the original issue of the service bulletin recommends accomplishing that detailed inspection, Revision 1 does not recommend its accomplishment for compliance with this final rule. Therefore, the commenter may choose to accomplish Revision 1, which has been added as an alternative source of service information for this final rule as discussed previously. If the commenter chooses to accomplish the original issue of the service bulletin, under the provisions of paragraph (h) of this final rule, we may consider requests for approval of an AMOC if sufficient data are submitted to substantiate that such a design change would provide an acceptable level of safety. Therefore, no further change to the final rule is necessary in this regard.

Request To Revise Corrective Action

One commenter requests that we revise paragraph (e) of the proposed AD, so that defects found during the baseline inspections may be repaired in accordance with an FAA-acceptable method. The commenter states that, while Parts 1 through 9 of the service bulletin specify to contact Boeing for rework requirements and additional inspections if any damage is found or structural integrity is not verified, paragraph (e) of the proposed AD would require that these corrective actions be repaired per a method approved by the FAA, or per data approved by a Boeing DER. The commenter considers the method of repair specified in paragraph (e) of the proposed AD unnecessarily burdensome, especially for correcting relatively simple defects such as missing or broken fasteners. Furthermore, the commenter believes that the corrective action for a defect found during a normal maintenance period should not require AMOC approval.

We do not agree with the request to revise paragraph (e) of this final rule because of the known, possible consequences of discrepancies found in the nacelle strut-to-wing attachment structure. We also do not agree with the request because the damage allowables and corrective action are undefined in the service bulletin. We retain approval authority for repair according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, or according to data meeting the certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make those findings. Therefore, no change to the final rule is necessary in this regard.

Request for Flight Standards District Office (FSDO) Approval

One commenter requests that we revise the proposed AD to allow approval for changes in compliance time "through the operators Flight Standards District Office as per their established procedures," rather than by the Manager of the Seattle ACO. The commenter states that the repetitive baseline inspections, and possibly the supplemental inspections, should be given the same flexibility as any other maintenance program requirement. The commenter also asserts that, in order for operators to integrate the proposed AD into their FAA-approved maintenance program, the approval of inspection escalation should be made through the operator's Flight Standards District Offices.

We do not agree. The inspection interval of the supplemental inspection is based on complex engineering analysis that meets the damage tolerance requirements of Section 25.571 ("Damage-tolerance and fatigue evaluation of structure") of the Federal Aviation Regulations (14 CFR 25.571) as upgraded in the Type Certificate Data Sheet for Boeing Model 747 series airplanes. If that inspection interval is changed, the damage tolerance requirements may not be met.

Separation of the strut and engine from the airplane prior to strut modification resulted in two accidents with fatalities on Model 747 series airplanes. In addition, there have been numerous structural issues even after strut modification. Under the provisions of paragraph (h) of this final rule, we may approve requests for adjustments to the compliance time if data are submitted to substantiate that such an adjustment would provide an acceptable level of safety. Therefore, no change to the final rule is necessary in this regard.

Consideration for a Change to the Maintenance Program

Two commenters consider the proposed AD an inappropriate use of an airworthiness directive. One commenter states that the recommendations specified in the original issue of the service bulletin appear better suited for implementation via Maintenance Review Board (MRB) and associated Maintenance Planning Data (MPD) documents, with the exception of the check for the part number of the side link fuse pins.

Another commenter states that the service bulletin/AD process is an inappropriate method for enacting changes to the required maintenance programs. The commenter also states that the FAA should work together with manufacturers and operators to develop a better method of revising the maintenance, inspection, and overhaul requirements for large, transport category aircraft. Furthermore, the commenter believes "that appropriate revisions to the Maintenance Review Board Document, the Maintenance Planning Document and/or the Aircraft Limitation Instruction are warranted." The commenter also notes that the proposed AD would be applicable to all future Model 747 series airplanes that are yet to be built with the current strut design.

We do not agree that the proposed AD is an inappropriate use of an airworthiness directive. We are requiring the post strut modification inspections in Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001; or Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004; to meet the upgraded certification basis of the strut-to-wing attachments as listed in the Type Certificate Data Sheet for Model 747 series airplanes. The certification basis was upgraded to a higher level of safety due to accidents involving the strut-to-wing attachments. To adequately address the unsafe condition, we are mandating the post strut modification inspections as recommended in the service bulletin by the airplane manufacturer to meet the new certification basis.

Furthermore, certain airplanes have been delivered with MPD documents that do not require accomplishing these inspections, so we are mandating the inspections with an AD. Note that an operator is only required to accomplish inspections included in the MPD delivered with the airplane; inspections added in subsequent revisions to the MPD are not mandatory until we mandate them with an AD. Therefore, we find that this final rule is the least complex and most timely method to mandate new inspections, if the inspections were not included in the MPD delivered with an airplane. For commonality, we have mandated the inspections for all Model 747 series airplanes through a service

bulletin developed by the manufacturer. We may consider revising the applicability of the AD if the inspections in the service bulletin are incorporated in the airworthiness limitation section of the MPD, which is provided with the airplane upon delivery from the production line for future airplanes. Therefore, no change to the final rule is necessary in this regard.

Additional Change to This AD

Operators should note that, although the Accomplishment Instructions of the referenced service bulletins specify to report damaged or cracked fuse pins to the manufacturer, this AD would not require those actions. We do not need this information from operators.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 991 airplanes of the affected design in the worldwide fleet. The FAA estimates that 187 airplanes of U.S. registry will be affected by this AD.

It will take approximately 280 work hours per airplane to accomplish the repetitive baseline, supplemental, and fuse pin inspections at an average labor rate of \$65 per work hour. Based on these figures, the cost impact of the inspections, per inspection cycle, on U.S. operators is estimated to be \$3,403,400 for the fleet, or \$18,200 per airplane.

It will take approximately 48 work hours per airplane to overhaul the diagonal brace, at an average labor rate of \$65 per work hour. Based on these figures, the cost impact of the overhaul, per overhaul cycle, on U.S. operators is estimated to be \$583,440 for the fleet, or \$3,120 per airplane.

It will take approximately 40 work hours per airplane overhaul the spring beam, at an average labor rate of \$65 per work hour. Based on these figures, the cost impact of the overhaul, per overhaul cycle, on U.S. operators is estimated to be \$486,200 for the fleet, or \$2,600 per airplane.

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

Authority for This Rulemaking

The FAA's authority to issue rules regarding aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

This rulemaking is promulgated under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this AD.

Regulatory Impact

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2005-03-01 Boeing: Amendment 39-13957. Docket 2001-NM-279-AD.

Applicability

All Model 747 series airplanes, certificated in any category.

Compliance

Required as indicated, unless accomplished previously.

To ensure the structural integrity of the strut-to-wing load path and prevent separation of the strut and engine from the airplane, accomplish the following:

Compliance Times

(a) Where the compliance times for the initial and repetitive baseline and supplemental inspections in the Accomplishment Instructions of Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001; or Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004; specify a compliance time interval calculated "from the release of this service bulletin," this AD requires compliance within the interval specified in the service bulletin "after the effective date of this AD."

Inspections/Follow-On Actions

(b) Do the initial and repetitive baseline and supplemental inspections of the nacelle strut-to-wing attachment structure for discrepancies (including cracks, corrosion, or damage; and loose, missing, or broken fasteners), and do the applicable follow-on actions; by doing all the actions in Part 1 through Part 9 of the Work Instructions of Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001. Do the inspections (including inspections for correct installation of hardware and part numbers) and follow-on actions at the applicable times specified in Figure 1 of the service bulletin.

(c) Do the initial and repetitive overhauls of the diagonal brace and spring beam load paths by doing all the actions in Part 10 and Part 11 of the Work Instructions of Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001. Do the initial and repetitive overhauls at the applicable times specified in Part 10 and Part 11 of the service bulletin.

(d) Do the initial and repetitive inspections of the fuse pins and secondary pins of the strut-to-wing attachment by doing all the actions in Part 12 of the Work Instructions of Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001. Do the inspections at the times specified in Part 12 of the service bulletin.

Corrective Actions

(e) If any discrepancy is found during any inspection required by this AD: Before further flight, do all applicable corrective actions specified in Part 1 through Part 12 of the Work Instructions of Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001. Do the applicable corrective actions per the service bulletin. If the service bulletin specifies to contact the manufacturer for appropriate action: Before further flight, repair per a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, or per data meeting the type certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make such findings.

Optional Service Bulletin

(f) As an option, paragraphs (b) through (e) of this AD may be done in accordance with Part 1 through Part 12, as applicable, of the Work Instructions of Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004, at the applicable times specified in the service bulletin. If any action specified in paragraphs (b) through (e) of this AD is done in accordance with Revision 1 of the service bulletin, do all of the actions specified in paragraphs (b) through (e) of this AD and the additional actions specified in paragraph (g) of this AD, in accordance with Revision 1 of the service bulletin. If the service bulletin specifies to contact the manufacturer for appropriate action: Before further flight, repair per a method approved by the Manager, Seattle ACO, FAA, or per data meeting the type certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make such findings.

Additional Actions for Optional Service Bulletin

(g) If, as an option, any action specified in paragraphs (b) through (e) of this AD is done in accordance with Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004, of the service bulletin, do a detailed inspection of all strut-to-wing attach joints to determine the part number of any dual side link fuse pin; and install the correct fuse pin if any incorrect fuse pin is found; by doing all of the actions specified in the "Initial Base Line Inspection Requirements" of the Work Instructions of Revision 1 of the service bulletin. Do these actions at the applicable times specified in Revision 1 of the service bulletin.

Note 1: For the purposes of this AD, a detailed inspection is "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

No Reporting Requirement

(h) Although the service bulletins referenced in this AD specify to submit certain information to the manufacturer, this AD does not include that requirement.

Alternative Methods of Compliance (AMOC)

(i)(1) In accordance with 14 CFR 39.19, the Manager, Seattle ACO, FAA, is authorized to approve AMOCs for this AD.

(2) An AMOC that provides an acceptable level of safety may be used for a repair required by this AD, if it is approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make such findings.

Incorporation by Reference

(j) Unless otherwise specified in this AD, the actions shall be done in accordance with Boeing Alert Service Bulletin 747-54A2182, dated July 12, 2001. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Effective Date

(k) This amendment becomes effective on March 9, 2005.

Issued in Renton, Washington, on January 18, 2005.
Ali Bahrami,
Manager, Transport Airplane Directorate, Aircraft Certification Service.
[FR Doc. 05-1724 Filed 2-1-05; 8:45 am]
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